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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NGUYEN, LEE

ART UNIT PAPER NUMBER

2618

DATE MAILED: 12/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/814,454	TEGREENE, CLARENCE T.	
	Examiner	Art Unit	
	LEE NGUYEN	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-14 and 17-46 is/are rejected.
- 7) ☒ Claim(s) 3-5,15 and 16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Information Disclosure Statement

The IDS filed 3/31/04, 4/22/04, 4/18/05 and 7/24/06 have been considered and recorded in the file.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 20-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 20 and 40, the claims recite second mote antenna, but the first mote antenna is not recited. Therefore, the claims are indefinite.

Dependent claims 21-39 are rejected for the same reason as set forth above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 6, 8-13, 17-25, 29, 31-35, 39-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Regnier et al. (US 2003/0222818) in view of Bridgelall (US 2005/0143133).

Regarding claim 1, Regnier et al teach a wireless local area network (WLAN) method comprising: adjusting a field of regard of a first mobile station directional antenna (coarse adjusting, para [0018], [0043], fig. 3); monitoring one or more indicators of a received signal quality of the first mobile station directional antenna (fig. 4, step 406, signal quality metric); and determining a direction associated with a second access point in response to the monitored one or more indicators of the received signal strength of the first mobile directional antenna (fine adjustment, para [0018], [0043], fig. 4).

Regnier et al fail to teach that the mobile station and the access point in the WLAN correspond to the claimed first mote and second mote, respectively. Bridgelall teaches that a sensor network (the claimed mote) is part of a WLAN (para [0063]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the mote network of Bridgelall in the WLAN of Regnier et al so that antenna directivity can apply to the mote as well, thereby reducing interference and increasing gain in the mote network. Regnier et al as does not explicitly teach that the signal quality metric also includes the signal strength. It is taken official notice that the signal quality that includes the signal strength is conventionally well known in the art. It would have been obvious to one of ordinary skill in the art at the time the invention was made

to include the signal strength measurement into the system of Regnier et al when other measured signal hardware are unavailable.

Regarding claim 2, Regnier et al and Bridgelall also teach that said adjusting a field of regard of a first-mote directional antenna further comprises: moving the field of regard such that the field of regard of the first-mote directional antenna will likely operably align with a beam of a second-mote directional antenna (given direction, para [0018] of Regnier).

Regarding claim 6, Regnier et al and Bridgelall further teach that said adjusting a field of regard of a first-mote directional antenna further comprises: selectively varying one or more relative phases respectively associated with one or more antenna elements (para [0045] of Regnier).

Regarding claim 8, Regnier et al as modified also teaches that said selectively varying one or more relative phases respectively associated with one or more antenna elements further comprises: selectively switching one or more delay elements respectively associated with the one or more antenna elements (para [0017] of Regnier et al).

Regarding claim 9, Regnier et al as modified also teach that said selectively varying one or more relative phases respectively associated with one or more antenna elements

comprises: selectively displacing the one or more antenna elements (Regnier et al., fig. 2A).

Regarding claims 10 and 11, Regnier et al and Bridgelall fail to teach that said selectively displacing at least a part of the first-mote directional antenna further comprises: selectively adjusting a feed of a horn antenna. It is taken official notice that the art of using a feeder horn antenna is conventionally well known. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feeder horn antenna in the system of Regnier when other antennas are unavailable.

Regarding claim 12, Regnier et al as modified also teach that said adjusting a field of regard of a first-mote directional antenna further comprises: selectively tuning the first-mote directional antenna (para [0042]-[0043] of Regnier et al).

Regarding claim 13, Regnier et al. as modified also teach that said monitoring one or more indicators of a received signal strength of the first-mote directional antenna further comprises: logging one or more indicators of the received signal strength of the first-mote directional antenna (para [0054] of Regnier).

Regarding claim 17, Regnier et al as modified also teach determining a substantially maximum signal power associated with a beacon signal; and determining a direction of the field of regard of the first-mote directional antenna associated with the substantially

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maximum signal power (para [0047] of Regnier et al).

Regarding claim 18, Regnier et al as modified also teach comprising: adjusting the field of regard of the first-mote directional antenna to orient toward the determined direction associated with the second mote (para [0018] of Regnier et al).

Regarding claim 19, the apparatus claim 19 is interpreted and rejected for the same reason as set forth in the method claim 1.

Regarding claim 20, Regnier et al teach a mote method comprising: adjusting a beam of a second mobile station directional antenna (phase adjust, para [0017]); and transmitting a signal over the beam of the second mobile station directional antenna (signals transmitted, para [0017]). Regnier et al fail to teach that the mobile station and the access point in the WLAN correspond to the claimed first mote and second mote, respectively. Bridgelall teaches that a sensor network (the claimed mote) is part of a WLAN (para [0063]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the mote network of Bridgelall in the WLAN of Regnier et al so that antenna directivity can apply to the mote as well, thereby reducing interference and increasing gain in the mote network.

Regarding claim 21, Regnier et al as modified also teach that said adjusting a beam of a second-mote directional antenna further comprises: selectively forming the beam of the

second-mote directional antenna (pointing direction, para [0018] of Regnier et al).

Regarding claim 22, Regnier et al. also teach that said adjusting a beam of a second-mote directional antenna further comprises: selectively switching the beam of the second-mote directional antenna (para [0017] of Regnier et al).

Regarding claim 23, Regnier et al also teach that adjusting a beam of a second-mote directional antenna further comprises: selectively steering the beam of the second-mote directional antenna (para [0042] of Regnier).

Regarding claim 24, Regnier et al also teach that said adjusting a beam of a second-mote directional antenna further comprises: selectively adapting the beam of the second-mote directional antenna (para [0017] of Regnier).

Regarding claim 25, Regnier et al. also teach that said adjusting a beam of a second-mote directional antenna further comprises: moving the beam such that the beam of the second-mote directional antenna will likely operably align with a field of regard of the first-mote directional antenna (para [0018] of Regnier).

Regarding claim 29, Regnier et al also teach that said adjusting a beam of a second-mote directional antenna further comprises: selectively varying one or more relative phases respectively associated with one or more antenna elements (para [0045] of

Regnier et al).

Regarding claim 31, the claim is interpreted and rejected for the same reason as set forth in claim 8.

Regarding claim 32, the claim is interpreted and rejected for the same reason as set forth in claim 9.

Regarding claims 33-34, the claims are interpreted and rejected for the same reason as set forth in claims 10-11.

Regarding claim 35, the claim is interpreted and rejected for the same reason as set forth in claim 12.

Regarding claim 39, Regnier et al as modified also teach that said transmitting a signal over the beam of the second-mote directional antenna further comprises: detecting an initiation signal; and initiating at least one of said adjusting a beam of a second-mote directional antenna or said transmitting a signal over the beam of the second-mote directional antenna, in response to said detecting (para [0047] of Regnier et al).

Regarding claim 40, the apparatus claim is interpreted and rejected for the same reason as forth in the method claim 20.

Regarding claim 41, Regnier et al teach a mote method comprising: adjusting a field of regard of a first mobile station directional antenna in response to a direction associated with a second access point directional antenna (coarse adjusting, para [0018], [0043], fig. 3); and at least one of transmitting a signal from the first directional antenna or receiving a signal from the first directional antenna (para [0045]). Regnier et al fail to teach that the mobile station and the access point in the WLAN correspond to the claimed first mote and second mote, respectively. Bridgelall teaches that a sensor network (the claimed mote) is part of a WLAN (para [0063]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the mote network of Bridgelall in the WLAN of Regnier et al so that antenna directivity can apply to the mote as well, thereby reducing interference and increasing gain in the mote network.

Regarding claim 42, Regnier et al as modified also teach that said adjusting a field of regard of a first-mote directional antenna in response to a direction associated with a second-mote directional antenna further comprises: localizing the second-mote directional antenna (para [0018] of Regnier).

Regarding claim 43, the claim is interpreted and rejected for the same reason as set forth in claim 1.

Regarding claim 44, Regnier et al as modified also teach that said transmitting a signal from the first-mote directional antenna further comprises: transmitting the signal over a beam of the first-mote directional antenna (para [0039] of Regnier et al).

Regarding claim 45, Regnier as modified also teach that said receiving a signal from the first-mote directional antenna further comprises: receiving the signal through a field of regard of the first-mote directional antenna (fig. 3 of Regnier et al, coarse tuning).

Regarding claim 46, the claim is interpreted and rejected for the same reason as set forth in claim 41.

Claims 7, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Regnier et al. in view of Bridgelall as applied to claim 6 above, and further in view of Sengupta et al. (US 2004/0008140).

Regarding claim 7, Regnier et al. fail to teach selectively varying one or more relative dielectric constants respectively associated with the one or more antenna elements. Sengupta et al. teaches teach selectively varying one or more relative dielectric constants respectively associated with the one or more antenna elements (see abstract). It would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine Sengupta et al with Regnier et al in order to enhance tuning speed of the antennas.

Regarding claim 30, the claim is interpreted and rejected for the same reason as set forth in claim 7.

Claims 14, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Regnier et al. in view of Bridgelall as applied to claim 1 above, and further in view of Maeki (US 2003/0228857).

Regarding claims 14, 36, Regnier et al as modified fail to teach that said determining a direction associated with a second mote in response to the monitored one or more indicators of the received signal strength of the first-mote directional antenna further comprises: selectively varying a reception frequency. Maeki teaches that determining a direction associated with a second mote in response to the monitored one or more indicators of the received signal strength of the first-mote directional antenna further comprises: selectively varying a reception frequency (fig. 2, step 280). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Maeki with Regnier et al in order to minimize collision.

Allowable Subject Matter

Claims 3-5, 15-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 3, the prior art of record fails to teach or suggest that said moving the field of regard such that the field of regard of the first-mote directional antenna will likely operably align with a beam of a second-mote directional antenna further comprises: rotating the field of regard at a rate of rotation varied by a quasi-random amount from a nominal rate of rotation of the first-mote directional antenna and the second-mote directional antenna.

Regarding claim 4, the prior art of record fails to teach or suggest that said moving the field of regard such that the field of regard of the first-mote directional antenna will likely operably align with a beam of a second-mote directional antenna further comprises: moving the field of regard through at least two angles at a quasi-randomly selected rate of movement.

Regarding claim 5, the prior art of record fails to teach or suggest that said moving the field of regard such that the field of regard of the first-mote directional antenna will likely operably align with a beam of a second-mote directional antenna further comprises: moving the field of regard for a quasi-randomly selected period of

time.

Regarding claim 15, the prior art of record fails to teach or suggest that said selectively varying a reception frequency further comprises: maintaining a first reception frequency during a first rate of movement.

Claims 26-28, 37-38 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Regarding claim 26, the claim is allowable for the same reason as set forth in claim 3.

Regarding claim 27, the claim is allowable for the same reason as set forth in claim 4.


Regarding claim 28, the claim is allowable for the same reason as set forth in claim 5.

Regarding claim 37, the claim is allowable for the same reason as set forth in claim 15.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEE NGUYEN whose telephone number is 571-272-7854. The examiner can normally be reached on FIRST FRIDAY OFF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ANDERSON D. MATTHEW can be reached on 571-272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


LEE NGUYEN
PRIMARY EXAMINER